Cognizant

Cloud360™

# Just-in-Time Development and Testing

The need for faster responses to ever-changing business conditions, increasing user demands and competitive pressures makes application life-cycles shorter than ever. Not only are engineering teams under pressure to deliver enhanced applications more quickly. They are also challenged to adapt rapidly to new development and test technologies in an agile way to meet the needs of mobile, social-minded millennial customers.

These needs result in frequent sprints of development and testing activities. Each sprint requires the creation or modification of a unique set of system configurations, architectural components and platform resources. The complex, dynamic environments must not only be enabled by virtualization, but also need to be automated for provisioning, configuration, management and deployment to increase business agility and operational efficiencies.

To speed the production of high-quality applications, development teams require the just-in-time provisioning, configuration, management and deployment of applications through a unified view of, and access to, all development and test environments, regardless of platform.

Cloud360™, our enterprise IT management solution, helps users, managers, administrators and executives meet such challenges. It allows them to consistently manage development and test configurations, create reference architectures and provision a full array of virtual resources regardless of platform or location. It allows for the efficient automation and deployment of virtual resources across application and server environments within budget allocations. By allowing the on-demand, automatic and consistent distribution of template-based or custom configurations across deployments at various stages of the development and test cycle, it gives organizations the agility and cost-savings they need for working just in time.

Automation and On-demand Service Management Layer

Cognizant Cloud360 solution overview | July 2012

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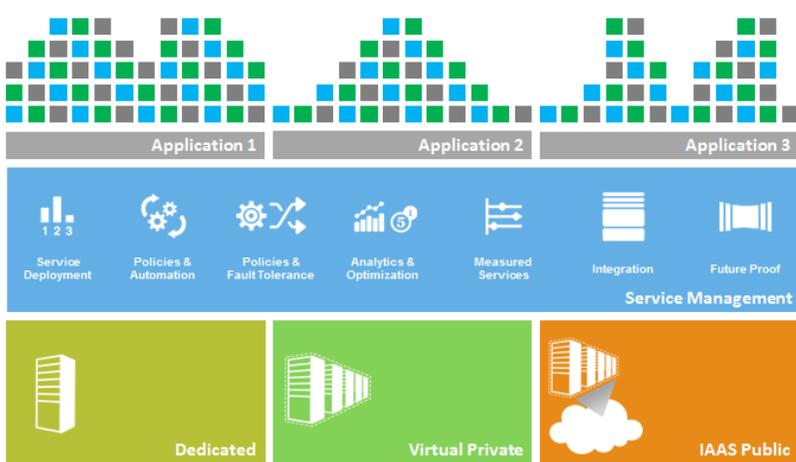
Business benefits:

- **Enhanced speed,** with infrastructure and application environment provisioning reduced from weeks to minutes.

- **Self-empowerment,** with users creating multitiered, multi-platform applications with the click of a button. Managers have instant visibility into resource usage and costs incurred.

- **Improved product quality** by making compute instances available on demand.

Compliance benefits:

- Architecture standardization through catalogue-based provisioning and workflow controls.

- Intelligent policies that boost compliance enforcement.

- Reduced time for running multiple, parallel tests reduces time to market while assuring compliance.

Addressing Software Configuration Challenges, Driving Productivity

Among the most significant challenges facing enterprise development teams is the loss of productivity caused by the lack of properly configured application environments. Every team member requires access to an application environment that includes the specific components required for a particular stage in the development and test process. This configuration is time-consuming, as environments remain intertwined and require different server configurations on each application tier.
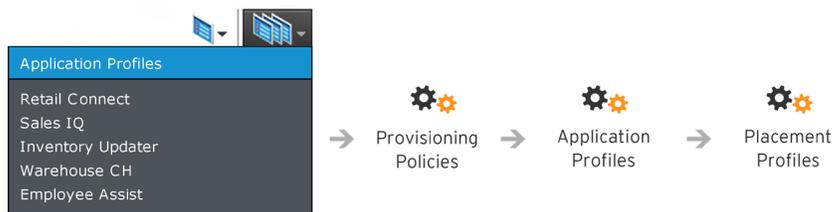
Further complications can arise due to complex deployment architectures, the number of revisions made to software on VMs and the need to assure compatibility among hardware and software platforms. These factors pose a major challenge not only in provisioning development and test environments, but in deploying different versions of them.

In a manual environment, the profile for each virtual machine (VM) is often contained within a Word document which lists the steps required for proper configuration. Without an automated, orchestrated provisioning system, there is no way to know if a VM configuration complies with the profile unless and until there is a problem. Such undiscovered "drift" can not only cause errors in the development and test process, but can also result in security vulnerabilities.

Just-in-Time Enablers

Cloud360 offers the following capabilities:

- Environments
- Application Profiles
- Automation Policies
- Consumption Metering
- Scheduling
- Trending Visualizations
- Monitoring Policies
- Role based

Cloud360's application profiles enable users to create a properly installed application. This makes provisioning a properly configured application as simple as cloning from a snapshot. This speed and accuracy eliminates the configuration chaos that can otherwise slow an agile development project as the complexity of the application increases. It also eliminates application errors, or inaccurate testing, that can result from software patches, application versions or other components that are not consistently deployed across all systems.

Cloud360 cuts through the complexity of creating and tracking properly configured compute instances by allowing authorized administrators to create instance profiles. These are classes of services optimized for

Simplified and Policy-driven Provisioning Process

Application Profiles

Retail Connect
Sales IQ
Inventory Updater
Warehouse CH
Employee Assist

→ Provisioning Policies → Application Profiles → Placement Profiles

specific steps in the development, test or deployment cycle. These Instance profiles specify details such as the data center in which a compute instance will be located, the operating system and other software installed on it, the storage associated with it and the type of clustering, if any, that will be applied to it.

Once instance profiles are created, administrators can use them to easily and quickly create the various compute instances needed for different staging or production environments. Cloud360 also allows versioning of instance profiles to ensure that only the proper versions are used as profiles and updated to address new requirements.

For multitier applications, Cloud360 allows users to create application profiles that automate all the steps required to provision all the compute instances required for each tier, including running any required custom scripts.

Cloud360 addresses three critical development and test requirements:

- Agility: Provisioning resources on demand.

- Configuration Management: Provisioning resources with the assured correct configuration.

- Cost Control: Provisioning resources within budget.

Cloud360 eliminates the people and process errors and failures that, according to some estimates, cause more than 40% of all mission-critical IT service outages.

Overcoming Deployment, Architecture Challenges

Properly defining and configuring the various classes of enterprise applications for agile development is one critical challenge. The next challenge is to actually build and deploy these.

Cloud360's application profiles reduce the cost and turnaround time to deploy applications and the associated compute instances, storage, archi-

Easier Compliance Management for Application Environments
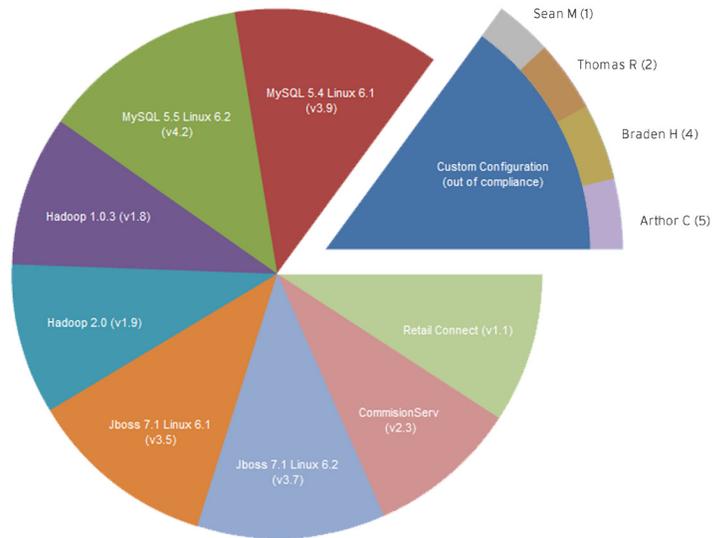
tecture and other configurations. This interface makes it easy for managers to configure each type of compute instance, as well as its deployment process, and specifies every step from the installation of the operating system and application to associated components such as databases and run-time environments. For each version of a server, the manager can produce the latest system images, packaged and bundled for deployment, and deploy them with a single click.

Cloud360 also provides easy integration with custom scripts already created for many agile environments, allowing organizations to perform repetitive deployment tasks without manual intervention.

This enabling of team members to create and publish application profiles and the control Cloud360 provides over catalogs, change management and encapsulated application environments makes it easier to roll out new applications and to bring new team members on board. The capability to take snapshots and automatically check environment compliance increases the reliability of the deployment architecture.

The use of application profiles and version management also helps with patch management and the upgrading of software tools for the development environment. The ability to archive and

share application profiles improves productivity and collaboration across distributed teams, and across the various provider platforms supported by Cloud360.

Addressing Standardization/ Compliance Issues

In software testing and compliance, unintended change is the enemy of quality. Without confidence that each VM has been properly configured it is impossible to know if a system crash or slowdown is due to a bug or merely to an incorrect patch level or system setting. Without proper, consistent configurations, there is no way to ensure that known security vulnerabilities (a leading cause of security breaches) have been properly closed in all affected systems.

Monitoring the consistency of development and test environments is complex. This is not only because the number of VMs rises and falls unpredictably, but because the Instance profile for each type of VM often changes throughout the development and test process.

Cloud360 reduces monitoring costs and improves consistency by automatically and continuously identifying any changes made to the compute instances created from snapshots of approved systems. It highlights such changes to managers, allowing them to take appropriate action.

Cloud360 makes it easier to change test configurations, debug failures reliably and quickly and streamline towards deployment of properly configured applications. The integration capabilities allow test managers to integrate with other test environments and trigger provisioning or deployment sequences automatically.

Cloud360 also streamlines the migration from pre-deployment testing and staging into deployment by maintaining the environmental configurations, images and deployment logic. Because Cloud360 configurations work across provider platforms, problems resulting from differences between staging and production hardware are also eliminated.

Cloud360 thus delivers:

- Improved software quality through increased testing consistency.

- Improved compliance through platform standardization.

CASE STUDY >>

Deploying Application Resources for Life Sciences Research

Business Situation
Top-10 global pharma company

Challenge
Seven weeks of turnaround time for application deployment, underutilization of valuable system resources and high administrative costs to provision and manage a mix of environments.

Solution
Cloud360 enabled the global, on-demand, self-service provisioning and management of application development and test environments. One-click configuration of application profiles and service profiles. Integration with existing IT environments including Active Directory authorization and role-based access control.

Benefits
Savings of millions of dollars while ensuring compliance with SLAs, policies and governance requirements. Increased utilization of computing resources while reducing management costs and supporting the current and future use of other private and public cloud platforms.

Addressing Resource Utilization Challenges, Improving Cost Control

In traditional test and development environments, VMs are allocated to projects and the costs are associated accordingly. Using on-demand provisioning, users can easily get the VMs they need, but often fail to decommission systems that are no longer needed. To assure the efficient use of resources, executives and line managers need insight into actual utilization and utilization trends over time, as well as control over resource allocation.

Cloud360 provides a flexible and configurable policy framework that allows managers to set cost and/or resource consumption limits for application deployments, locations, users groups or departments. These policies might, for example, notify the user or even shut down a compute instance that is being underutilized. Cloud360 lets business managers assign a monetary value to resources such as a unit of CPU or storage for a given amount of time. It also allows them to create policies, such as a limit on the total charges a team may incur in a month, and trigger actions such as blocking server provisioning or notifying a manager if those limits are breached.

Cloud360 also eliminates the need to use multiple tools to monitor and manage VMs that are hosted in public or private clouds, or that were created using different virtualization platforms. By allowing developers and managers to see their consumption to date, the Cloud360 portal helps assure efficient use of resources.

By reducing hardware requirements for development and testing, businesses can:

- Reduce capital expenditures for hardware by 40% to 80%.

- Reduce associated power, cooling and cabling costs.

Addressing Operations Overhead Challenges

Without a robust self-service capability, development or test professionals make requests through a provisioning system that triggers manual configuration processes. This adds to delays, costs and the possibility of human error.

Cloud360's portal gives developers and testers the compute instances they need with a single click, but only if the request complies with policy requirements.

Simplified Provisioning Workflow Management
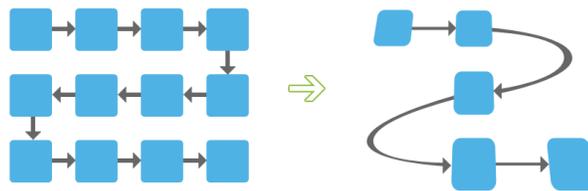
Cloud360 also reduces confusion for developers and testers, and minimizes the chances of using an incorrectly configured compute instance, by allowing each user to see only the snapshots appropriate to their phase of the project.

Business Benefits

Imagine a future where development teams spend less time provisioning new environments and more time understanding business needs and developing outstanding applications. Imagine a world where agile sprints were not delayed, and parallel testing of multiple components is not interrupted, by a lack of VMs. Imagine what developers could do if they had the time and flexibility

Cloud360: Innovation Enabler

Cloud360 enables Agile development and test environments, empowers the engineering team in meeting the demands of a tighter development lifecycle and enables business to deliver faster and higher-quality products to users.

to explore new development tools and new architectures without lengthy approval and administrative processes.

With faster and easier access to computer resources, developers and testers can spend more time understanding, and meeting, the business challenges posed by mobile customers and co-workers, millennial users and customers, increased globalization and the rise of the virtual enterprise. Our Cloud360 brings them into this world, hiding the complexity of configuring, provisioning and de-provisioning compute instances, reducing costs and delays while improving quality, reliability and time to market.

About Cognizant

Cognizant (NASDAQ: CTSH) is a leading provider of information technology, consulting, and business process outsourcing services, dedicated to helping the world's leading companies build stronger businesses. Headquartered in Teaneck, New Jersey (U.S.), Cognizant combines a passion for client satisfaction, technology innovation, deep industry and business process expertise, and a global, collaborative workforce that embodies the future of work. With over 50 delivery centers worldwide and approximately 140,500 employees as of March 31, 2012, Cognizant is a member of the NASDAQ-100, the S&P 500, the Forbes Global 2000, and the Fortune 500 and is ranked among the top performing and fastest growing companies in the world.

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